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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,178	08/27/2001	Toan Phan Vo	01-159	4414

7590 06/26/2003  
COHEN & GRIGSBY, P.C  
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Pittsburgh, PA 15222

EXAMINER

BARRY, CHESTER T

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 06/26/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/940,178

Applicant(s)

VO, TOAN PHAN

Examiner

Chester T. Barry

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 22-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: \_\_\_\_\_

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1 - 21, drawn to a carbon adsorbent and method of making the same, classified in class 508<sup>2</sup>, subclass 40+.
- II. Claims 22 - 29, drawn to stream purification, classified in class 210, subclass 660+.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in a materially different process of using that product.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Christine Wettach on 6/3/03 a provisional election was made without traverse to prosecute the invention of Group I, claims 1 -21. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 22 – 29 are withdrawn from further consideration by the examiner, 37  
CFR 1.142(b), as being drawn to a non-elected invention.

Claims 1 – 9, 11 – 13 are rejected under 35 USC §102(b) as anticipated by USP 4877920 to LUSH. LUSH describes a carbon adsorbent comprising a porous carbon having a BET surface area greater than about 100 m<sup>2</sup>/g, e.g., preferably > 350 m<sup>2</sup>/g (col 2 line 2). It has incorporated therein, e.g., “depositing thereon . . . and then calcining in air” (col 1 line 65), at least one oxygen-containing compound of at least one metal selected from the group consisting of iron, copper, and aluminum, or combinations thereof, e.g., CuO (copper oxide) (per claim 3). Per claim 4, LUSH describes using the adsorbent in removing arsenic from hydrocarbon streams. Per claim 5, LUSH discloses the micropore volume of the adsorbent as 2 – 3 cc/gm (col 3 line 2), or 200-300 cm<sup>3</sup>/100 g, which is greater than about 20 cm<sup>3</sup>/100 g, as recited in claim 5. Per claim 6, Lush says the amount of CuO is “5 - 25%” by weight based on carbon. The recited limitation of “up to about 50%” reads on 5 – 25% even though 25% does not anticipate “about 50%.” Per claim 8, Lush describes a method of making the adsorbent upon which disclosure the claim 8 method of making the adsorbent reads. Per claim 11, calcining is a chemical reaction.

Per claim 2, the disclosed step of preparing the carbon with CuO deposited thereon involves treating the carbon with an aqueous salt and then calcining in air. This procedure results in dispersing the CuO on the carbon. Accordingly, Lush meets at least the “dispersion” limitation of claim 2.

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Claim 6 is rejected under 35 U.S.C. Sec. 112, 2nd parag., for failing to particularly point out and distinctly claim the subject matter for which patent protection is sought. It is unclear whether "said metal" as recited in claim 6 refers to the metal selected from the group consisting of iron, copper, and aluminum, or combinations thereof, or to the "heavy metal."

§103(a) – claim 10

Lush clearly states that the copper oxide is deposited on the activated carbon "by known means such as treating with an aqueous salt . . . and then calcining in air," but does not specifically mention whether the "aqueous salt" is a halide, nitrate, sulfate, chlorate, or carboxylate having 1 – 5 carbon atoms. Claim 10 is rejected under 35 USC §103(a) over Lush nonetheless, however, because the skilled artisan would have been motivated to prepare an aqueous salts solution containing copper using any well-known copper salt, such as the halide, e.g., chloride, or the nitrate, sulfate, or chlorate, for these are common commercially available aqueous copper salts.

§103(a) – claims 14-15

Claims 14 – 15 is rejected under 35 USC §103(a) over Lush in view of USP 6475386 to Carr. Lush clearly states that the activated carbon can be obtained commercially, but does not appear to disclose the source do the carbon. It would have been obvious to have selected commercially activated carbon obtained from any known activated carbon source, such as, for example, nut shell. In this regard, see USP

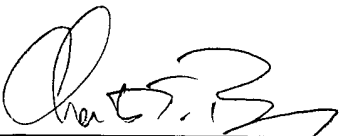
6475386 to Carr (assigned to Calgon) describing nut shell as a known source of activated carbon.

§103(a) – claims 16-21

But for the inclusion of at least one compound of a metal selected from the group consisting of iron, copper, or aluminum, it appears that the recited method of making an activated carbon adsorbent is old. Lush suggests the step of incorporating CuO into the carbon adsorbent to improve arsenic removal during hydrocarbon processing.

Accordingly, the method of claims 16 – 21 appears to be obvious over the admitted prior art in view of Lush.

Respectfully



703-306-5921

CHESTER T. BARRY  
PRIMARY EXAMINER